

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF PENNSYLVANIA**

CARNEGIE MELLON UNIVERSITY,)
)
Plaintiff,)
v.)
)
MARVELL TECHNOLOGY GROUP, LTD.,) Civil Action No. 2:09-cv-00290-NBF
and MARVELL SEMICONDUCTOR, INC.,)
)
Defendants.)

MARVELL'S AMENDED PRETRIAL STATEMENT

Defendants Marvell Technology Group, Ltd. and Marvell Semiconductor, Inc. (“Marvell”) hereby serve this Pretrial Statement in accordance with the Court’s Pretrial order dated October 20, 2011 (Dkt. 315), Rule 16.1.C of the Local Rules of the United States District Court for the Western District of Pennsylvania and the Court’s instruction at the September 10, 2012 Telephonic Status Conference.

I. BRIEF NARRATIVE STATEMENT

When CMU initiated this litigation, it informed the Court that Dr. Kavcic and his advisor Professor Moura were the first to take correlated and signal-dependant noise into account via modified branch metrics in a Viterbi-like detector for signal detection in hard disk drives. In the face of the Worstell (Seagate) prior art, however, CMU was forced to abandon this claim and to take a new position on the scope of the alleged invention. Their new theory is the alleged invention is directed to specific “selecting” circuits employing a special set of “branch metric functions” for use in Viterbi detection. Notwithstanding the fact that Marvell’s chips do not use the required special selector nor a special set of modified branch metric functions, CMU appears intent on taking this technologically complex case to a jury, so that it can seek a financial windfall by portraying Marvell as a bad actor and copyist.

Marvell’s Founding and Success. Marvell was founded in 1995 by Dr. Sehat Sutardja,¹ his wife Weili Dai, and his brother Dr. Pantas Sutardja. The Sutardja brothers came to the United States to study and pursue careers in electronic engineering. Over the past 17 years, through hard work, dedication and innovation, they built a global leader in the design and development of semiconductor chips for use in hard disk drives as well as smart phones, e-readers and other electronic products requiring specialty chips. Marvell’s products have won

¹ *Sehat Sutardja: An Engineering Marvell*, IEEE Spectrum magazine (November 2010) (attached as Ex. 1).

numerous awards from the technical community for their innovation. Marvell's intellectual property holdings consist of more than 1,800 issued U.S. patents, 500 issued foreign patents, and over 3,000 pending U.S. and foreign applications. The accused hard drive chips in this suit include hundreds of features, built from millions of transistors, using Marvell's own proprietary and innovative designs.

Marvell will establish at trial that its own innovation and technology relating to these hundreds of features are the reason why Marvell has been so successful at selling its chips.

The Kavcic Patents. Kavcic's U.S. Patent Nos. 6,201,839 and 6,438,180 include two groups of claims that Marvell has been accused of infringing – the so-called “Group I” and “Group II” claims. The Group I claims (claims 1-5 of the ‘839 patent and claims 1-2 of the ‘180 patent) are directed to methods for determining so-called “branch metric values for branches of a trellis for a Viterbi-like detector.” The Group II claims (claims 11, 16, 19, and 23 of the ‘839 patent, and claim 6 of the ‘180 patent) are directed to methods and devices for detecting “a sequence that exploits the correlation between adjacent signal samples for adaptively detecting a sequence of symbols stored on a high density magnetic recording device.” In light of the Court’s ruling on Marvell’s summary judgment motion (Dkt. 443), Marvell’s accused products do not infringe the Group II claims, and thus the trial will only focus on the Group I claims.

A. Marvell’s Accused Products Do Not Infringe

For years now, CMU has wrongly – and unfairly – accused Marvell of patent infringement. With respect to its Group II claims, CMU has finally conceded, what Marvell has maintained throughout this litigation, that neither Marvell’s accused chips nor its computer studies (simulations) infringe claims 16, 19, and 23 of the ‘839 Patent and claim 6 of the ‘180 Patent. And as to the final Group II claim (claim 11 of the ‘839 patent), the Court granted Marvell’s motion for summary judgment of noninfringement due to a lack of evidence of any

infringement (other than conclusory and unsupported opinions of Prof. McLaughlin, which the Court rejected as a matter of law). Dkt. 443 at 7-10.

Similarly, Marvell has not infringed the Group I claims.² These claims, as construed by the Court, are limited to Viterbi-like detectors that employ a specific “selecting” step, as well as a special set of “branch metric functions.” As Dr. Kavcic admitted in a paper published before this case was filed, the theoretical model described in CMU’s patents is too complex to implement in real-world chips. That is why the industry is not using CMU’s patents. Marvell is no different. Marvell’s accused chips are designed to take media noise into account in a very different way than set forth in the Group I claims. Specifically, the Viterbi detectors used in Marvell’s chips do not employ the required “selecting” circuit or special set of “branch metrics functions,” as construed by the Court for trial in this case. Marvell’s chips address media noise through either pre-processing or post-processing. As such, they do not employ the claimed subject matter in dispute.³ Notably, in the same paper in which Dr. Kavcic described his design as too complex to implement in hardware, he also described Marvell’s read channel chip design as “novel,” citing one of Marvell’s patents. (*Id.* at ¶ 176).⁴

² See Blahut Report at ¶ 32 and ¶¶ 267, 271-310.

³ Marvell’s computer studies (“simulations”) also do not infringe the Group I claims. *See* Blahut Report at ¶ 32 and ¶¶ 267, 311-321. As will be explained in a motion *in limine*, CMU’s claim that Marvell’s computer studies infringe the Group I claims should be limited to those studies which are the subject matter of Professor McLaughlin’s Rule 26 expert report.

⁴ Because Marvell’s accused products do not infringe, there also can be no indirect infringement. *See Dynacore Holdings Corp. v. U.S. Philips Corp.*, 363 F.3d 1263, 1277 (Fed. Cir. 2004) (finding that a party’s “failure to prove direct infringement ... necessarily dooms its allegations of indirect infringement, because absent direct infringement of the claims of a patent, there can be neither contributory infringement nor inducement of infringement”). However, even if CMU were correct that some end users in the U.S. operate disk drives containing the accused products in an infringing mode, Marvell will establish at trial that the vast majority of its sales of the accused products are non-U.S. sales, which cannot contribute to infringement of a U.S. patent as a matter of law. *See, e.g., O2 Micro Intern. Ltd. v. Sumida Corp.*, 2006 WL

B. CMU's Asserted Group I Claims Are Invalid

CMU's attorneys have overreached by attempting to extend the Group I claims to cover Marvell designs that Dr. Kavcic himself characterized as "novel" and "NOT" covered by his claims (at least before suit). Specifically, at the time Marvell was designing its own method for handling media noise (called a "Media Noise Processor" or an "MNP," for short), Seagate reached out to Dr. Kavcic and he personally confirmed in an email (2001) that a post-processor design (as in Marvell's MNP) was "NOT" covered by his claims (or at least that was his position back then). He went even further to note that the Patent Office required an amendment to his claims to add in limitations to distinguish over a post-processor design in the prior art. Now, however, CMU's overreaching has created a number of invalidity problems.

Marvell will establish at trial that the Group I claims are anticipated (under 35 U.S.C. §102) by five separate sources of prior art: (1) the Seagate (Worstell) Patent; (2) the prior work that Glen Worstell did at Seagate; (3) the IBM Article; (4) the IBM '766 Patent; and (5) the SPIE article published by Professor Barbosa at UCSD. (*See* Proakis Rpt. at ¶¶ 179-202 along with discussion set forth in related claim charts at Appendices 10-14).

Marvell also plans to establish at trial that, to the extent there are any real differences between the Group I claims and the prior art listed above,⁵ the differences are insignificant, insubstantial and/or routine, rendering the claims invalid as being obvious over the prior art

981987, *1 (E.D. Tex. Apr. 12, 2006), judgment vacated on other grounds (invalidity), 315 Fed. Appx. 266 (Fed. Cir. 2009) (granting accused infringer motion for JMOL that it did not contributorily infringe patent by selling its product to a party outside of the U.S. and did not control that party in its subsequent importation of the product into the United States).

⁵ Professors Wolf, Proakis, Kryder, and Glen Worstell all were unable to identify any differences between the Group I claims and what Mr. Worstell (Seagate) described in his earlier patent directed to a Viterbi detector with a modified branch metric to address signal dependent and correlated noise. See Dkt. 220 at Exh. 9 (Wolf); Dkt. 251-11 (Proakis), Dkt. 251-12 (Worstell); and Dkt. 298-1 at 35 (Kryder).

pursuant to 35 U.S.C. § 103. *See* Proakis Rpt. at ¶¶ 203-5 along with discussion set forth in related claim charts at Appendices 10-14.

In opposition to Marvell's motion for summary judgment, CMU attempted to distinguish the Worstell prior art detector from the Group I claims.⁶ In doing so, CMU created three separate and independent ¶ 112 validity problems. First, Marvell will establish at trial that, as a factual matter, certain words and phrases in the claims, which CMU relied on as key to avoiding the Worstell prior art, lack written description support in the specification of the CMU patents (in violation of 35 U.S.C. Section 112, ¶ 1).⁷ Second, given the lack of guidance on these claims, the specification of CMU's patents does not enable the full scope of the claimed subject matter (in violation of 35 U.S.C. Section 112, ¶ 1). Lastly, the claims are rendered indefinite because they do not adequately perform their function of notifying the public of the scope of CMU's

⁶ Marvell notes that CMU in opposing Marvell's earlier summary judgment motion based on the Worstell patent (Dkt. 234) submitted three declarations by Prof. McLaughlin (Dkt. 234-9, 265-03, and 291-14), none of which were the subject of any cross-examination. The issue of what the Worstell patent discloses, or does not disclose, is an issue of fact for the jury, not of law, given that the Court has construed the claims. *Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 619 (Fed. Cir. 1985) (Anticipation “presents a question of fact for the jury.”); *Sightsound.com Inc. v. N2K, Inc.*, 391 F. Supp. 2d 321 (W.D. Pa. 2003) (“Whether a prior art reference anticipates a patent claim is a question of fact.”).

⁷ Marvell notes that CMU's opposition to Marvell's earlier summary judgment motion based on lack of written description (Dkt. 323) included two declarations submitted by Prof. McLaughlin (Dkt. Nos. 325-02) and Prof. Strang (Dkt. 325-1), neither of which were the subject of any cross-examination. The issue of what the CMU patent specification discloses, or does not disclose, is an issue of fact for the jury, not of law, given that the Court has construed the claims. *See, e.g., Genentech, Inc. v. Trustees of University of Pennsylvania*, 2012 WL 1670167 (N.D. Cal. May 14, 2012) (“Whether the written description requirement is met is typically a fact question for the jury . . .”); *CMU v. Hoffmann-La Roche Inc.*, 541 F.3d 1115, 1122 (Fed. Cir. 2008) (“Whether the written description requirement is satisfied is a fact-based inquiry that will depend on the nature of the claimed invention . . . and the knowledge of one skilled in the art at the time an invention is made and a patent application is filed.”); *Centocor Ortho Biotech, Inc. v. Abbott Labs.*, 636 F.3d 1341, 1347 (Fed. Cir. 2011) (“Compliance with the written description requirement of 35 U.S.C. § 112, ¶ 1 is a question of fact, and we review a jury’s determinations of facts relating to compliance with the written description requirement for substantial evidence.”) (Internal quotations omitted).

alleged rights to exclude (in violation of 35 U.S.C. Section 112, ¶ 2). These three “technical” grounds for invalidity are described in Prof. Proakis’ Expert Report at ¶¶ 206-237 and are a natural consequence of CMU’s improper attempt to argue the claims are somehow broad enough to assert against Marvell, yet narrow enough to avoid the prior art.

C. **CMU Is Not Entitled to Damages**

As an initial matter, because Marvell does not infringe, CMU is not “entitled” to damages.

Assuming *arguendo* that CMU were able to prove infringement of a valid patent claim, a “hypothetical negotiation” between CMU and Marvell would have resulted in a lump sum reasonable royalty of no more than \$250,000 for rights to any one or more of the Group I claims of the asserted patents. (*See* Hoffman Rpt. at pgs. 9-25.) CMU’s claim that it is entitled to a running royalty has no evidentiary foundation. Indeed, CMU’s claim is based on predicates and assumptions that are inconsistent with the facts and contrary to the evidence that will be presented at trial. Marvell will establish at trial that, among other things, the purported reasonable royalty analysis proffered by CMU:

1. Fails to take into account CMU’s activities with respect to licensing (and attempting to license) the Kavic patents and CMU’s policies regarding the dissemination of intellectual property.
2. Relies on an inaccurate and incomplete analysis of Marvell’s licensing history and preferences.
3. Ignores the real economics of the relevant markets.
4. Misconstrues Marvell’s competitive position in those markets.
5. Misapprehends the needs and preferences of Marvell’s hard disk drive customers and prospective customers.
6. Ignores research, development, innovation, and proprietary technologies contributed by Marvell.

7. Ignores alternative means for addressing media noise and improving signal-to-noise ratio.
8. Relies on a flawed analysis of pricing and margins.
9. Mischaracterizes the usefulness of the patented technology.
10. Generally fails any basic test of reasonableness.

Marvell will also establish at trial that CMU is not entitled to any pre-suit damages under the doctrine of laches, because CMU unreasonably delayed in filing suit after it should have known of its alleged claims.⁸ In 2003, CMU sent a letter to Marvell and several others in the industry about the asserted patents. Aside from that single letter to Marvell, however, for the next nearly six years, CMU went silent.

The evidence will show that CMU unreasonably delayed in filing this lawsuit after it knew or should have known of its alleged claim against Marvell. The evidence will also show that as a result of CMU's delay, Marvell has suffered economic prejudice (for example, relating to investments and the products at issue) and evidentiary prejudice (for example, due to faded memories of the witnesses and lost documents). Any argument by CMU that it could not have known of its claims sooner is belied by the scope of its purported allegations.

D. CMU's Willful Infringement Claim Fails as a Matter of Law

As will be described in a motion *in limine* to be filed by Marvell, CMU's willful infringement claim is foreclosed as a matter of law. Willful infringement involves a two-prong inquiry:

- 1) Threshold objective prong. The first prong of the test requires the patentee to show by clear and convincing evidence that the

⁸ CMU also will not be able to establish entitlement to pre-suit damages under 35 U.S.C. §§ 286, 287, and/or 288. It is CMU's burden at trial to establish compliance with these statutes. See, e.g., *Nike, Inc. v. Wal-Mart Stores, Inc.*, 138 F.3d 1437, 1446-47 (Fed. Cir. 1998) ("the burden of proving compliance with the marking statute is upon the patentee").

infringer acted despite an objectively high likelihood that its actions constituted infringement of a valid patent.

- 2) Subjective prong. Once the threshold objective standard is satisfied, the patentee must also demonstrate that this objectively-defined risk was either known or so obvious that it should have been known to the accused infringer.

In re Seagate Technology, LLC, 497 F.3d 1360 (Fed. Cir. 2007) (*en banc*).

Following *Seagate*, the Federal Circuit further developed the standard for willfulness, clarifying that the objective prong “entails an objective assessment of potential defenses based on the risk presented by the patent. Those defenses may include questions of infringement but also can be expected in almost every case to entail questions of validity that are not necessarily dependent on the factual circumstances of the particular party accused of infringement.” *Bard Peripheral Vascular, Inc. v. W.L. Gore & Associates, Inc.*, 682 F.3d 1003, 1006 (Fed. Cir. Jun. 14, 2012). The Federal Circuit has concluded that the threshold objective prong “is best decided by the judge as a question of law.” *Id.* at 1006-07; *see also Sargent Mfg. Co. v. Cal-Royal Products, Inc.*, 2012 WL 3101691, *1 (D. Conn. July 27, 2012) (“The Federal Circuit therefore concluded that this prong “is best decided by the judge as a question of law.””).

Here, there can be no willful infringement as a matter of law, because: (1) the Court determined that Marvell’s motion for summary judgment as to the invalidity of the Group I claims was a “close call”⁹; (2) CMU conceded the non-infringement of half of its original claims; and (3) the Court granted summary judgment of non-infringement as to the only Group II

⁹ Dkt. 306 at 1 (“Although it was a ‘close call,’ for reasons stated more fully herein, Marvell’s motion [218] is DENIED); Dkt. 337 at 4 (“Although it was a close case, the Court found that the ‘251 Patent did not anticipate the Group I claims’); *see e.g., TGIP, Inc. v. AT&T Corp.*, 527 F. Supp. 2d 561, 579 (E.D. Tex. Oct. 29, 2007) (granting JMOL of no willfulness where infringement was a very “close question,” such that “[r]easonable persons, properly instructed and exercising impartial judgment, could not find by clear and convincing evidence that AT&T acted in the face of an unjustifiably high risk of harm”)

claim not subject to CMU’s concession. Given the Court’s decisions and CMU’s concessions, there should be no question that this is *not* a case involving an “objectively high likelihood” of infringement of a valid patent.

E. CMU’s “Copying” Story Is Legally Irrelevant And Risks Confusing The Jury

Marvell intends to file a motion *in limine* to exclude irrelevant and inflammatory accusations of “copying” from CMU’s “infringement story.” A product either infringes (is covered by the claims) or it does not (is not covered by the claims). The analysis is technical and complicated. The jury needs to first understand the technology – no small task in a case involving Viterbi detectors, branch metrics, and covariance matrices. The jury then needs to determine whether the claims, as construed by the Court, cover the accused technology. The accused infringer’s state of mind and accusations of “copying” are legally irrelevant to the technical infringement analysis. *Allen Engineering Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1351 (Fed. Cir. 2002) (“While copying may be relevant to obviousness, it is of no import on the question of whether the claims of an issued patent are infringed.”) Nevertheless, a lay juror unfamiliar with benchmarking and computer studies may very well be taken in by a skilled trial lawyer’s “copying story,” and could erroneously conclude that there must have been “infringement.”

Tellingly, in CMU’s own Pre-Trial Statement, under the “Infringement” heading (not just under the Willfulness heading), CMU has already started to conflate its infringement and willfulness allegations by repeatedly suggesting that Marvell and its employees copied. (*See* CMU Pretrial Statement at 3, 5, and 6: “Burd copied the Viterbi-like detector described in the CMU Patents.”; “Marvell copied the Kavcic-Moura invention disclosed in the CMU patents.”)

Despite the significant risk of misleading the jury and publicly disparaging the good names and reputations of Marvell and its 7,000 employees, CMU has indicated that it intends to tell the jury a copying story. The full story of the design and development of Marvell's chips naturally tells a different story.¹⁰ These events, supported by Marvell's contemporaneous internal R&D documents, establish that:

1. Marvell concluded that the Kavcic detector technology was too complex to implement in real-world chips. In the highly competitive disk drive business, cost, size, speed and power consumption are critical for success.
2. Dr. Kavcic's method of modifying the Viterbi detector so that signal-dependent and correlated noise can be taken into account in the branch metric mathematical calculations requires too many circuits and too much space on a chip and would also require too much power. Marvell concluded that it would not be practical to implement.
3. Marvell's chips address (media) noise in a different way than the Kavcic detector. They filter noise out ahead of time (NLV) or account for it in error correction after the signals are processed by the Viterbi detector (MNP & EMNP). In either case, Marvell's chips use a Viterbi detector without Dr. Kavcic's special modified branch metrics, and without a special "selecting" circuit for use with a special set of "branch metric functions," as required by the CMU patent claims.
4. Dr. Kavcic and his advisor Prof. Moura were not the first to take signal-dependent and correlated noise into account. Dr. Kavcic's work was focused on theoretically modeling the noise and taking it into account in the Viterbi detector. It required modifying the internal workings of the detector using sophisticated and mathematical calculations and special "selecting" circuits too complex to implement in a commercial chip.
5. Although not usable in actual chips, Dr. Kavcic's theoretical model is helpful as an (additional) yardstick to compare hypothetical designs against. Marvell's evaluation and computer studies of the technology Dr. Kavcic described in his publications do not infringe on his patent rights (which is legally defined by the scope of the

¹⁰ See Blahut Rpt. at ¶¶ 121-178 (summary in the form of a timeline).

Group 1 claims and not what he published in his papers or what Marvell's engineers understood those papers to say). With respect to the Group II claims, this has already been established. (*See* Dkt. 443). With respect to the Group I claims, Marvell will establish at trial that its computer studies did not and do not infringe those claims, particularly given the Court's claim constructions applicable to these proceedings. *See* Blahut Rpt. at ¶ 32 and Section X (¶¶ 267, 311-321); Proakis Rpt. at ¶¶ 206-237.

II. WITNESSES

Marvell expects to present at least the following persons to testify at trial on the issues of lack of liability and/or alleged damages:

1. Dr. Aleksandar Kavcic (lack of liability)
University of Hawaii at Manoa
Department of Electrical Engineering
2500 Campus Road
Honolulu, HI 96822
808-956-5174
2. Prof. Jose Moura (lack of liability)
Carnegie Mellon University
Department of Electrical and Computer Engineering
Porter Hall/Basement Room B20
Pittsburgh, PA 15213
412-268-6341
3. Dr. Alan Armstrong (Marvell's business)
Marvell Semiconductor, Inc.
5488 Marvell Lane
Santa Clara, CA 95054
408-222-2500
4. Dr. Zining Wu (lack of liability)
Marvell Semiconductor, Inc.
5488 Marvell Lane
Santa Clara, CA 95054
408-222-2500
5. Greg Burd (lack of liability)
Marvell Semiconductor, Inc.
5488 Marvell Lane
Santa Clara, CA 95054
408-222-2500

6. Prof. Richard Blahut (non-infringement, expert)
University of Illinois
Department of Electrical and Computer Engineering
109 Coordinated Science Lab, MC 228
1308 W. Main St.
Urbana, Illinois 61801
217-333-6669
7. Prof. John Proakis (patent invalidity, expert)
Northeastern University
Department of Electrical and Computer Engineering
422 Dana Building
Boston, MA 02115
617-373-4429
8. Creighton Hoffman (alleged damages, expert)
Hoffman Alvary & Company LLC
Seven Wells Ave
Newton, MA, 02459
617-758-0500
9. Replacement for Bill Brennan¹¹:
 - a) Mike O'Dell (Marvell's business)
Marvell Semiconductor, Inc.
5488 Marvell Lane
Santa Clara, CA 95054
408-222-2500

and/or

- b) Kevin Krehbiel (Marvell's business)
Marvell Semiconductor, Inc.
5488 Marvell Lane
Santa Clara, CA 95054
408-222-2500.

Marvell may present the following persons to testify at trial on the issues of lack of liability and/or alleged damage:

¹¹ Bill Brennan's consulting relationship with Marvell ended a few weeks ago. Accordingly, it is now unclear whether he will be able to attend trial. Given his seniority and history with the company, Marvell is designating Mike O'Dell and/or Kevin Krehbiel to testify in his place, both of which are long-time Marvell employees who worked directly for Bill Brennan during the relevant time period about 10 years ago.

1. Dr. Sehat Sutardja (Background, Founder & CEO of Marvell)
5488 Marvell Lane
Santa Clara, CA 95054
408-222-2500
2. Bill Brennan (Former Marvell V.P. of Sales)
484 W. Portola Ave.
Los Altos, CA 94022.
408-369-1121
3. One or more Marvell engineers (Design & Development of accused products)¹²
4. One or more Marvell employees (Marvell's accused chip business)¹³
5. Michael Raskin (Marvell's corporate structure and related financial issues)
21780 Via Regina
Saratoga, CA 95070
408-868-9949
6. Jonathan C. Parks (Preparation & prosecution of Kavcic's patent applications)
c/o Pietragallo Gordon Alfano Bosick & Raspanti, LLP
The Thirty-Eighth Floor
One Oxford Center
Pittsburgh, PA 15219
412-263-1846
7. Prof. Mark Kryder (lack of liability and alleged damages)
Carnegie Mellon University
Department of Electrical and Computer Engineering
235 Roberts Engineering Hall
Pittsburgh, PA 15213
412-268-3513
8. Robert Wooldridge (alleged damages)
Carnegie Mellon University
Center for Technology Transfer and Enterprise Creation
4615 Forbes Ave., Suite 302

¹² Hongxin Song, Panu Chaichanavong (both at Marvell Semiconductor, Inc., 5488 Marvell Lane, Santa Clara, CA 95054, 408-222-2500) and Toai Doan (Former Marvell V.P. of Signal Processing; 20150 Rancho Bella Vista, Saratoga, CA 95070; 408-313-4041).

¹³ Rajan Pai (Field Application Engineer; now V. P. of Sales), Sheng Huang (Field Application Engineer), Thuan Tran (Field Application Engineer), Vivek Khanzode, Alex Nazari, Pramod Patel, Michael Madden, Albert Wu, Lee Lee Cheung (financial information). Each of them can be reached at Marvell Semiconductor, Inc., 5488 Marvell Lane, Santa Clara, CA 95054; 408-222-2500.

Pittsburgh, PA 15213
412-268-7390

9. Glen Worstell (prior art)
12435 Junta St.
Felton, CA 95018
831-704-7395
10. Representatives of each of the following Marvell customers:

Samsung Information Systems America¹⁴
75 West Plumeria Drive
San Jose, CA 95134
408-544-5700

Samsung Semiconductor Inc.¹⁵
3655 North 1st Street
San Jose, CA 95134
408-544-4000

Toshiba America Information Systems, Inc.¹⁶
9740 Irvine Blvd.
Irvine, CA 92618
949-583-3000

Hitachi Global Storage Technologies¹⁷
5601 Great Oaks Parkway
San Jose, CA 95138
408-717-5000

Western Digital Corp.¹⁸
44100 Osgood Road

¹⁴ Marvell notes that Samsung Information Systems America designated Debasis Baral and Ken Hong for deposition pursuant to Fed. R. Civ. P. 30(b)(6).

¹⁵ Marvell notes that Samsung Semiconductor Inc. designated Jane Kim for deposition pursuant to Fed. R. Civ. P. 30(b)(6).

¹⁶ Marvell notes that Toshiba designated Rick Ehrlich for deposition pursuant to Fed. R. Civ. P. 30(b)(6).

¹⁷ Marvell notes that Hitachi designated Hideki Sawaguchi for deposition pursuant to Fed. R. Civ. P. 30(b)(6).

¹⁸ Marvell notes that Western Digital designated Paul Nordquist and Teik Ee Yeo for deposition pursuant to Fed. R. Civ. P. 30(b)(6).

Fremont, CA 94539
510-683-6100

Additionally, Marvell designates certain witnesses and expects to present testimony of those witnesses by means of a deposition by designating certain portions of those depositions to be presented. *See Exhibit A.* Marvell reserves the right to call these witnesses live should they be available or deemed available at trial. Marvell also reserves the right to supplement, modify or withdraw the designations identified in light of, *inter alia*, counter-designations or objections by CMU, testimony at trial, or rulings of the Court.

Marvell reserves the right to call as witnesses any individuals named in CMU's Pretrial Statement, to call any witnesses or designate any deposition testimony necessary for impeachment or rebuttal testimony of any witnesses called by CMU. Marvell reserves the right to supplement this Pretrial Statement to add witnesses, if necessary and permitted by the Court.

III. EXHIBITS

Marvell identifies certain exhibits that are expected to be offered or may be offered at trial. *See Exhibits B and C, respectively.*¹⁹ By identifying a document as an exhibit, Marvell does not waive and specifically reserves its right to object to the admissibility of any such document. Additionally, if necessary and permitted by the Court, Marvell reserves the right to supplement this Pretrial Statement until the time of trial. Pursuant to the parties' agreement, the parties will meet and confer on a schedule to exchange and object to any demonstrative exhibits and Fed. R. Evid. 1006 summary exhibits that the parties intend to use at trial. Marvell reserves the right to offer or introduce into evidence all documents and exhibits referred to in CMU's Pretrial Statement, and reserves the right to object to CMU's use of same. Further, Marvell reserves the right to offer or introduce any documents or exhibits necessary for impeachment or rebuttal purposes.

IV. LEGAL ISSUES TO BE ADDRESSED AT PRETRIAL CONFERENCE

1. Motions *in limine* and other pretrial motions that the parties do not resolve prior to the pretrial conference.
2. Discussion of points for charge may raise additional issues to be addressed at the pretrial conference.
3. Any additional legal issues that may come to light in connection with the parties' pre-trial preparations before the Pretrial Conference.
 - a. One issue raised by Marvell is whether the Court should seek an advisory verdict from the jury on Marvell's laches defense.

¹⁹ Marvell will be filing both exhibits under seal pursuant to the Court's September 17, 2012 Order granting [Dkt. 464] Defendants' Motion for Leave to File Exhibit List and Pretrial Expert Reports Under Seal.

V. EXPERT REPORTS

1. Prof. Richard Blahut is expected to testify on CMU's claims. The anticipated substance of his expert testimony is summarized in his March 2, 2012 Expert Report, which Marvell will be filing under seal pursuant to the Court's September 17, 2012 Order granting [Dkt. 464] Defendants' Motion for Leave to File Exhibit List and Pretrial Expert Reports Under Seal.

2. Prof. John Proakis is expected to testify as to the invalidity of the Kavcic patents. The anticipated substance of his expert testimony is summarized in his January 17, 2012 Expert Report, which Marvell will be filing under seal pursuant to the Court's September 17, 2012 Order granting [Dkt. 464] Defendants' Motion for Leave to File Exhibit List and Pretrial Expert Reports Under Seal.

3. Creighton Hoffman is expected to testify as to CMU's claimed damages. The anticipated substance of his expert testimony is summarized in his March 12, 2012 Expert Report, which Marvell will be filing under seal pursuant to the Court's September 17, 2012 Order granting [Dkt. 464] Defendants' Motion for Leave to File Exhibit List and Pretrial Expert Reports Under Seal.

Dated: September 24, 2012

Respectfully submitted,

/s/ John E. Hall

John E. Hall

Timothy P. Ryan

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CERTIFICATE OF SERVICE

I hereby certify that on September 24, 2012 the foregoing Amended Pretrial Statement was filed electronically. Notice of this filing will be sent to all parties via hand delivery and electronic mail.

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